



Digital Systems

5.2 Information Systems: Part I - ERP

FOX
MIS

ROADMAP

START

Week 1:

Introduction & Systems Analysis

- Course Description
- Systems Thinking

Week 2:

Digital Product Management & Introduction to Process Mapping

- Max Labs 1a & 1b
- Systems & Processes
- Swim Lane Diagrams

Week 3:

Data Modeling with Entity Relationship Diagrams

- Swim Lane Diagrams
- ERD Diagrams

Week 4:

Digital Systems – Learn IT! #1

- ERD Diagrams
- Learn IT Kickoff

Week 5:

Exam #1, Max Labs & Information Systems: Part I & II

- CRM & ERP

Week 9:

Exam #2 & JavaScript Unit #1 - Part I & II

- Hello World, Variables

Week 8:

Cybersecurity & AI – Part I & II

- Protection Protocols
- Artificial Intelligence

Week 7:

Platforms & Digital Business Models: Part I & II

- Platforms & Digital Models
- APIs

Week 6:

Information Systems: Part III & IV

- Data Analytics
- SCM

Week 10:

JavaScript Unit #2 Functions

- Operator types
- Strings

Week 11:

JavaScript Unit #3 Logical Operators & Conditional Logic

- Logical Operators
- Conditional Types

Week 12:

JavaScript Unit #4 Loops

- Intro to Loops
- While and Do

Week 13:

JavaScript Unit #4 Working with Loops

- Writing the code

Week 14:

HTML & CSS Unit

- HTML basics
- CSS basics
- Course Reflection

FINISH

What is ERP?

- ❖ ERP stand for **E**nterprise **R**esource **P**lanning.
- ❖ ERP refers to a type of software that organizations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations.



Source: <https://erpinnews.com/5-enterprise-resource-planning-erp-trends-to-watch-in-2019>

What is ERP?

❖ Imagine your departments are like disconnected islands

- Would this be desirable?
- Solution?



<https://www.vistage.com/research-center/business-growth-strategy/im-already-a-customer-disconnected-strategies-and-data/>

What is ERP?

- ❖ Imagine your departments are like disconnected islands
 - Would this be desirable?
 - Solution?



Source: <https://erpinnews.com/5-enterprise-resource-planning-erp-trends-to-watch-in-2019>

What is ERP?

- ❖ ERP is a Software that:
 - Integrates functions
 - Streamlines processes
 - Manage core business
- ❖ What problems could be solved by an ERP?



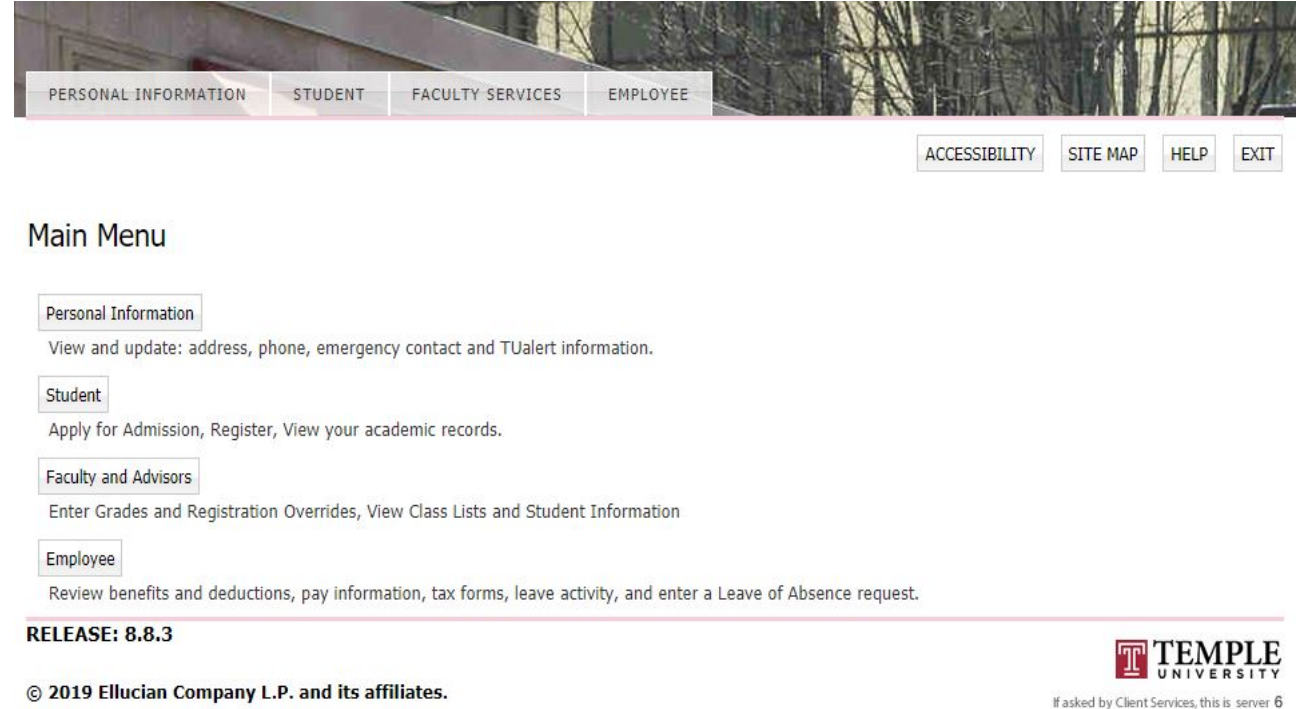
Source: <https://erpinnews.com/5-enterprise-resource-planning-erp-trends-to-watch-in-2019>

ERP-Example

Temple University Banner

❖ Database with a holistic vision!

- Who else uses banner?
- What functions does banner serve for each user?
- What are the benefits to the University?



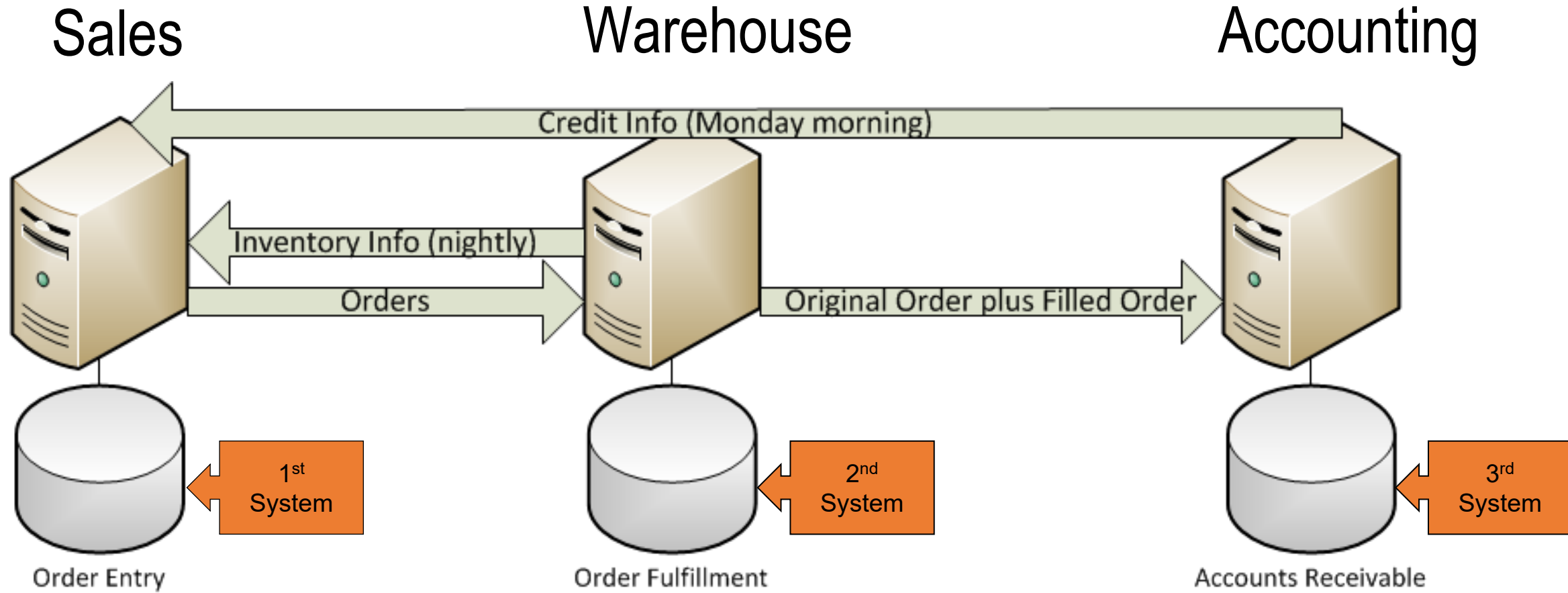
The screenshot shows the Banner system interface. At the top, there is a navigation bar with four tabs: PERSONAL INFORMATION, STUDENT, FACULTY SERVICES, and EMPLOYEE. Below this, there are four utility buttons: ACCESSIBILITY, SITE MAP, HELP, and EXIT. The main content area is titled "Main Menu" and lists four user categories with their respective functions:

- Personal Information**: View and update: address, phone, emergency contact and TUALert information.
- Student**: Apply for Admission, Register, View your academic records.
- Faculty and Advisors**: Enter Grades and Registration Overrides, View Class Lists and Student Information
- Employee**: Review benefits and deductions, pay information, tax forms, leave activity, and enter a Leave of Absence request.

Below the menu, it states "RELEASE: 8.8.3" and "© 2019 Ellucian Company L.P. and its affiliates." The Temple University logo is in the bottom right corner, along with the text "If asked by Client Services, this is server 6".

ERP-Example

Legacy Systems

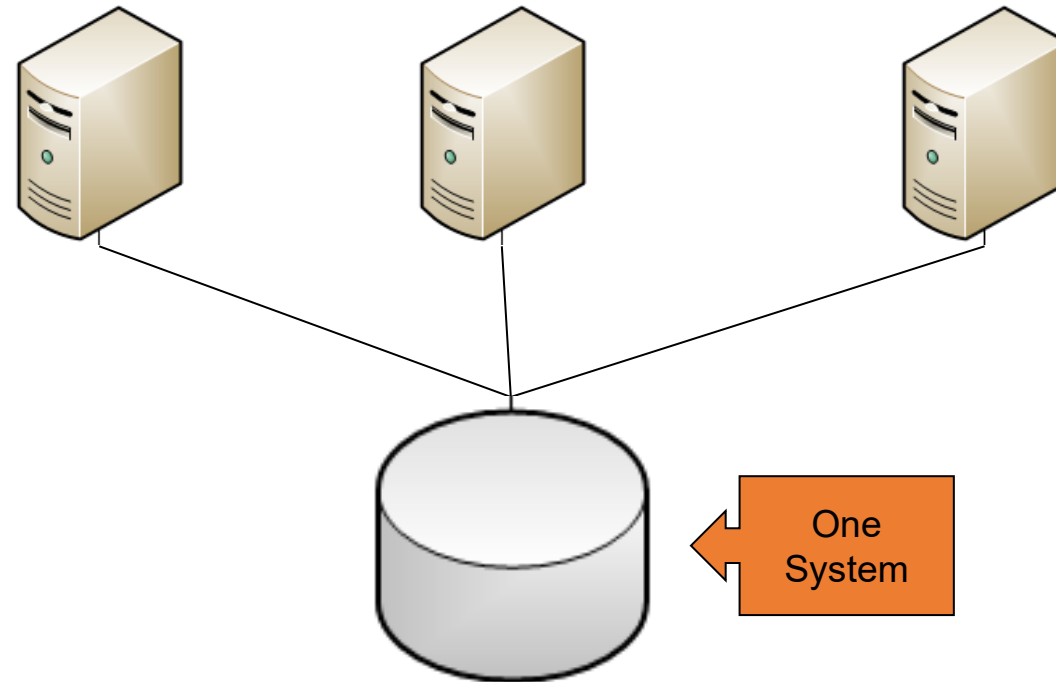


Enterprise Systems

Sales + Warehouse + Accounting

ERP analysis

- How many copies of data?
- What about decision making?
- What is eliminated?
- Client impact?



The Silo Effect

- ❖ Isolation between different functional departments: Workers may perform their tasks in their functional “silos” without fully understanding the other components of the process
 - Focusing narrowly on specific tasks, one may lose sight of the big picture of the larger process

<http://www.youtube.com/watch?v=5yRLmH1ge6k>



- ❖ Solution: communication and coordination between functional departments which requires exchanging information efficiently and effectively.

ERP – Key Takeaways

How does ERP create value?

- ❖ Integrated Database
 - One copy of data
- ❖ Collaboration
 - Improves decision making
- ❖ Flexibility & Mobility
 - Access anywhere/anytime
- ❖ Lowers costs



Source: <http://blog.pragtech.co.in/erp-business-success/>

ERP – Value Proposition

❖ Automates core business operations

➤ Why is this important for...

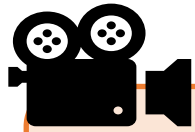
- Risk Management?
- Marketing majors?
- HR & Accounting?
- Finance & Strategy?
- Anyone else?



Source: <https://www.strategic.com/blog/2017/3-reasons-erp-training-important/>

Largest ERP Providers

- ❖ SAP
- ❖ Oracle
- ❖ Microsoft



See how Oracle ERP works

https://www.youtube.com/watch?v=jjyn0QMl0Fc&ab_channel=Oracle



Digital Systems

5.2 Information Systems: Part II CRM

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What is CRM?

❖ CRM stands for Customer Relationship Management†

❖ Who Uses CRM?

- Sales
- Marketing
- HR
- Accounting
- Strategy



Source: <https://collectiveinnovation.com/the-art-of-customer-relationship-management/>

What is CRM?

Customer Service:

Have you experienced this? Why?

- Transferred 2 or more times
- Repeat Story
- Disconnected
- Hold time approximately...
 - Fantastic music



Source: <http://donthatethegeek.com/cellular-carriers-screwing-phones/>

CRM Case Study:

Xfinity

The screenshot displays the Xfinity support website interface. At the top, there is a navigation bar with links for 'XFINITY', 'COMCAST BUSINESS', 'MY XFINITY', 'SHOP/UPGRADE', 'SUPPORT', and 'MY ACCOUNT'. On the right side of the navigation bar, there are icons for notifications (3), a computer monitor, a home icon, a Wi-Fi signal, a phone, a mobile phone, and a user profile labeled 'STEVE'. Below the navigation bar, the main header features the Xfinity logo and the text 'How can we help?'. A search bar is positioned below the header with the placeholder text 'Search topics or keywords'. Underneath the search bar, it lists 'Popular searches: Reset My Password, Sign In, Check Email'. The main content area is divided into five columns representing different service categories: INTERNET, TV, VOICE, HOME, and MOBILE. Each category has a list of specific support topics and a link to 'Browse' that category. Below this, there is a section titled 'Common Solutions' with three sub-sections: 'Accessibility' (with a gear icon), 'Account & Billing' (with a document icon), and 'Status Center' (with a signal tower icon). Each sub-section provides a brief description and a link to 'View' that specific support area.

Source: <https://www.xfinity.com/support/?CMP=ILC:MA:BAU:SUB:COM:HLP:INT55e0877fe16f7/>

CRM Case Study:

Amazon

The screenshot shows the Amazon help page for a user named Steve in Philadelphia. The page features a navigation bar with the Amazon Prime logo, a search bar, and various account and order management links. The main content area is titled "Hi, Steve. What can we help you with?" and contains six service tiles: "Your Orders", "Returns & Refunds", "Digital Services and Device Support", "Manage Prime", "Payments & Gift Cards", and "Account Settings". Each tile includes a list of specific services. Below these tiles is a "Find more solutions" search bar and a "Browse Help Topics" section with a list of recommended topics and a "Need more help?" section with links to the digital and device community, contact information, and Spanish support.

amazon prime

EN Hello, Steve Account & Lists Returns & Orders Prime Cart

Deliver to Steven Philadelphia 19146

Browsing History Today's Deals Steve's Amazon.com Buy Again Gift Cards

Hi, Steve. What can we help you with?

Your Orders

- Track packages
- Edit or cancel orders

Returns & Refunds

- Return or exchange items
- Print return mailing labels

Digital Services and Device Support

- Find device help & support
- Troubleshoot device issues

Manage Prime

- Learn about Prime benefits
- Cancel Prime membership

Payments & Gift Cards

- Add or edit payment methods
- View, reload gift card balance

Account Settings

- Change email or password
- Update login information

Find more solutions

Browse Help Topics

Recommended Topics

- Where's My Stuff?
- Managing Your Orders
- Account Settings & Payment Methods
- Returns & Refunds
- Shipping Policies
- Amazon Devices

Need more help?

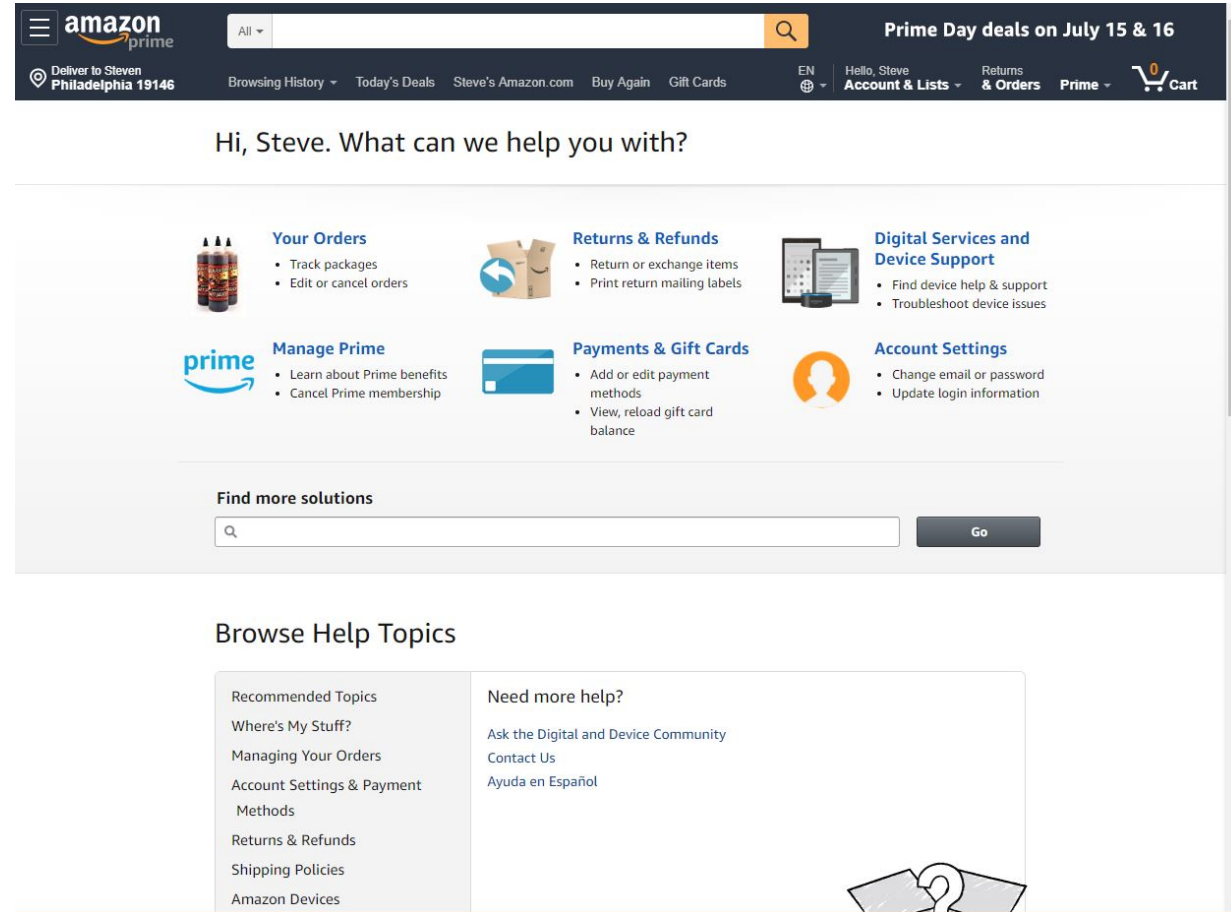
- Ask the Digital and Device Community
- Contact Us
- Ayuda en Español

Source: https://www.amazon.com/gp/help/customer/display.html?nodeId=508510&ref=_nav_cs_help

CRM Case Study:

Amazon

- Data Collection
- Personal Storage
- Recommendations
- Support



The screenshot shows the Amazon customer help page for a user named Steve. The page features a navigation bar with the Amazon Prime logo, a search bar, and links for account and order management. The main content area is titled "Hi, Steve. What can we help you with?" and contains several service tiles: "Your Orders" (Track packages, Edit or cancel orders), "Returns & Refunds" (Return or exchange items, Print return mailing labels), "Digital Services and Device Support" (Find device help & support, Troubleshoot device issues), "Manage Prime" (Learn about Prime benefits, Cancel Prime membership), "Payments & Gift Cards" (Add or edit payment methods, View, reload gift card balance), and "Account Settings" (Change email or password, Update login information). Below these tiles is a "Find more solutions" search bar and a "Browse Help Topics" section with a list of recommended topics and a "Need more help?" section with links to the Digital and Device Community, Contact Us, and Ayuda en Español.

Source: https://www.amazon.com/gp/help/customer/display.html?nodeId=508510&ref=_nav_cs_help

Why purchase CRM?

- ❖ Do companies really need CRM?
- ❖ Why?
- ❖ What businesses would benefit?



WHEN A COMPANY ENGAGES A CUSTOMER USING A CRM, THAT CUSTOMER IS LIKELY TO SPEND **20%-40% MORE** THE NEXT TIME THEY MAKE A PURCHASE WITH THAT PARTICULAR COMPANY.

A CRM CREATES A POSITIVE CUSTOMER EXPERIENCE. AS A RESULT,

70%
OF CUSTOMERS WHO HAVE HAD A POSITIVE EXPERIENCE WILL REFER THAT COMPANY TO FAMILY AND FRIENDS.



OF COMPANIES WITNESSED AN INCREASE IN SALES PRODUCTIVITY BY USING CRM MOBILE APPS.

BUSINESSES ALSO WITNESSED A



INCREASE IN CASH FLOW BY USING A CRM MOBILE APP.

CRM'S HAVE ALSO

INCREASED REVENUE BY **41%** PER EACH INDIVIDUAL SALES REPRESENTATIVE

LED TO SALES CONVERSION RATE IMPROVEMENTS OF OVER **300%**

HAVE LED TO AN INCREASED CUSTOMER RETENTION RATE OF **27%**

HAVE SLASHED MARKETING COSTS BY **23%**

HAVE INCREASED PROFIT MARGINS BY OVER **2%**

Source: <https://devftw.com/top-15-crm-software-for-retailers/>

Why purchase CRM?

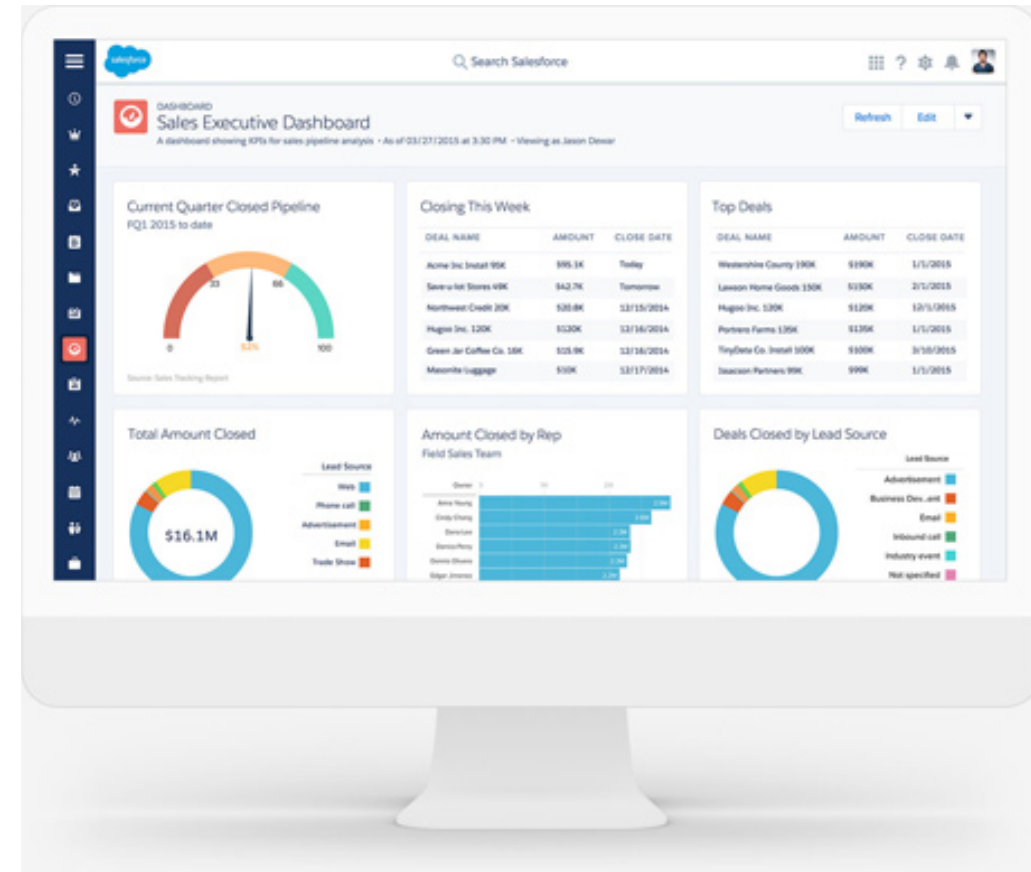
- ❖ CRM's track what kind of data?
- ❖ How do organizations use data?



Source: <https://www.salesforce.com/hub/service/customer-service-examples/>

CRM Dashboards

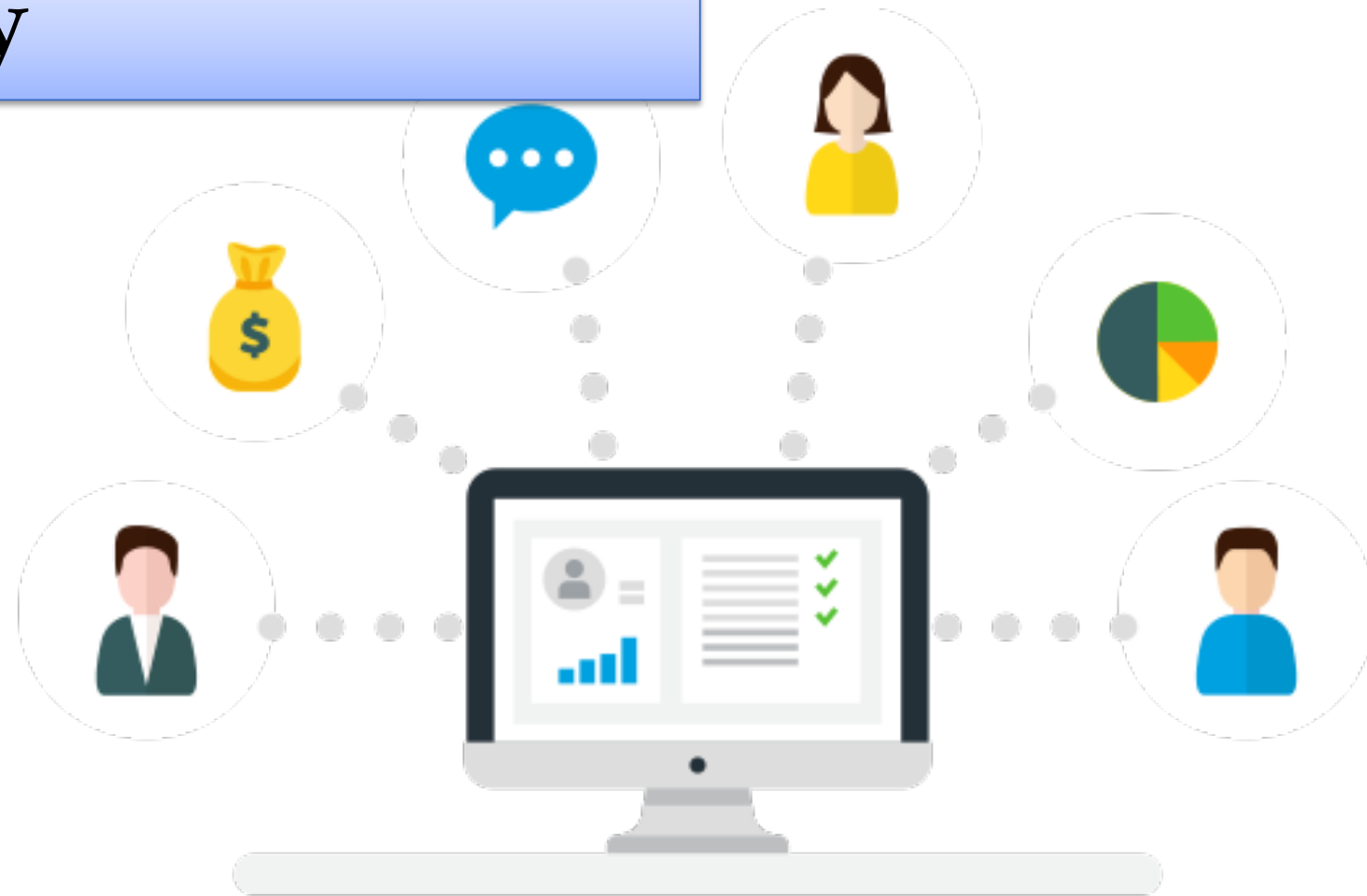
- ❖ What do they do?
- ❖ Who in the organization might want or need a CRM dashboard?
- ❖ Why are they important?



Source: <https://www.salesforce.com/eu/learning-centre/crm/what-is-crm/>

CRM Accountability

- ❖ What does this mean?
- ❖ Where is the data?
- ❖ Why is this important?



Source: <https://www.workwisellc.com/crm-software/what-is-crm/>

CRM Benefits

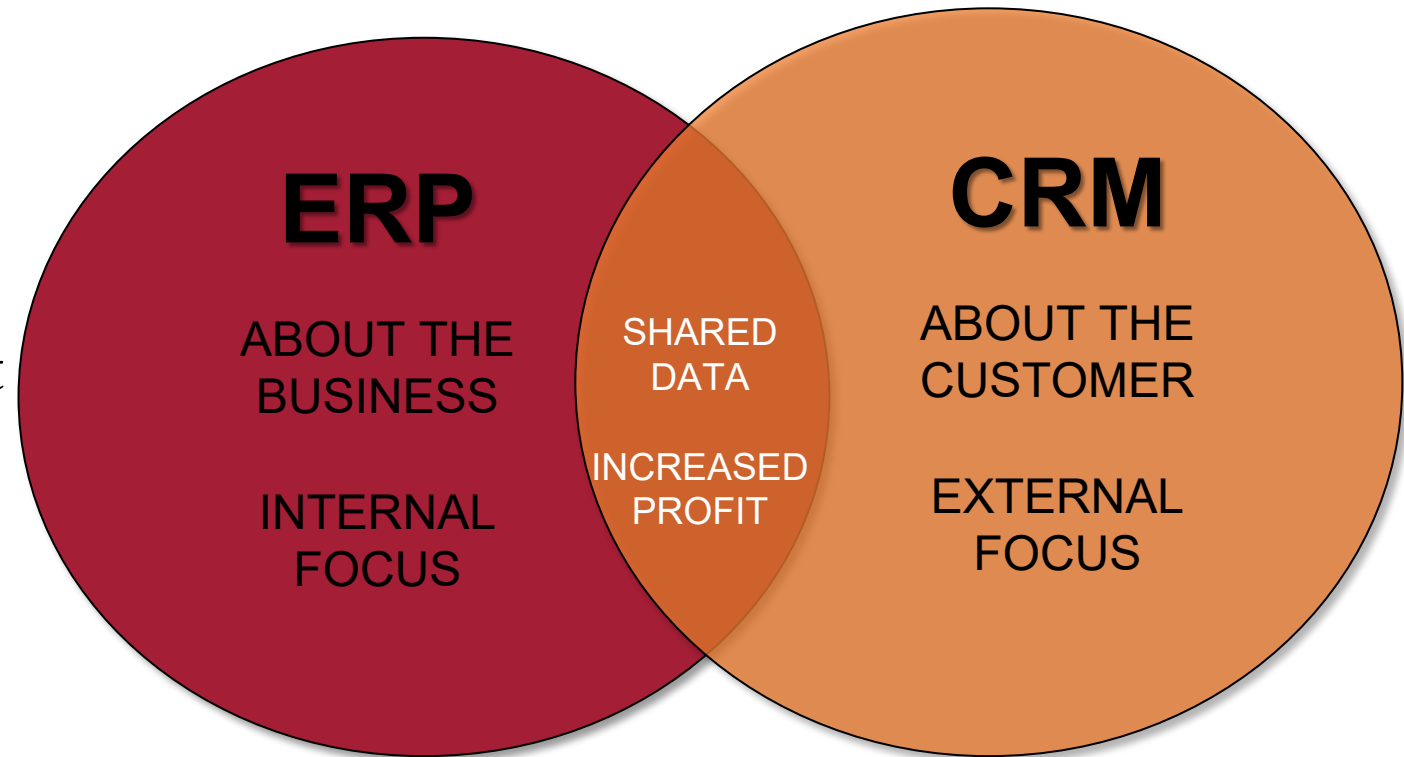
- ❖ Maximize Profits
- ❖ Understand Your Customer (data)
 - Analyze Buying Patterns
 - Problem Solve
- ❖ Accountability
- ❖ Customer Communication
- ❖ What else?



Source: <https://strategiesgroup.com/blog/benefits-of-crm/>

ERP & CRM

- ❖ What's the Difference?
- ❖ Which is a better first investment for a business?
- ❖ Why?



More to Come

Prepare with Readings & Videos before our next class!!!



Digital Systems

5.1 Max Labs 2a|2b & 3a|3b Discussion

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Business Systems Innovation Labs

Lab 2a Pre-flight Checklist



“No Sh**, Sherlock - The Case of the Lost Integrity”

Halloween’s approaching & Max is back with another episode and a mystery to solve.

Prep: What do you need to start?

- ✓ If you didn’t do Lab 1a and 1b, that’s ok. Just do **Steps 6-33 & 102-114** of Lab 1b and you’re good for this one.
- ✓ If you didn’t get the **Average Amount & Equity by Type** report created successfully in Lab 1b, that’s ok. When you hit Step 57 in this one, just refer to the screen cap of that report embedded after that step. No worries.

Max Labs 2a

Digital Product Management

FOX
MIS

Max Labs – 2a Discussion

Managing Data Corruption

- What's the Issue?
 - Error Messages?
- Mitigation
 - Best Practices?
 - Validation Rules?

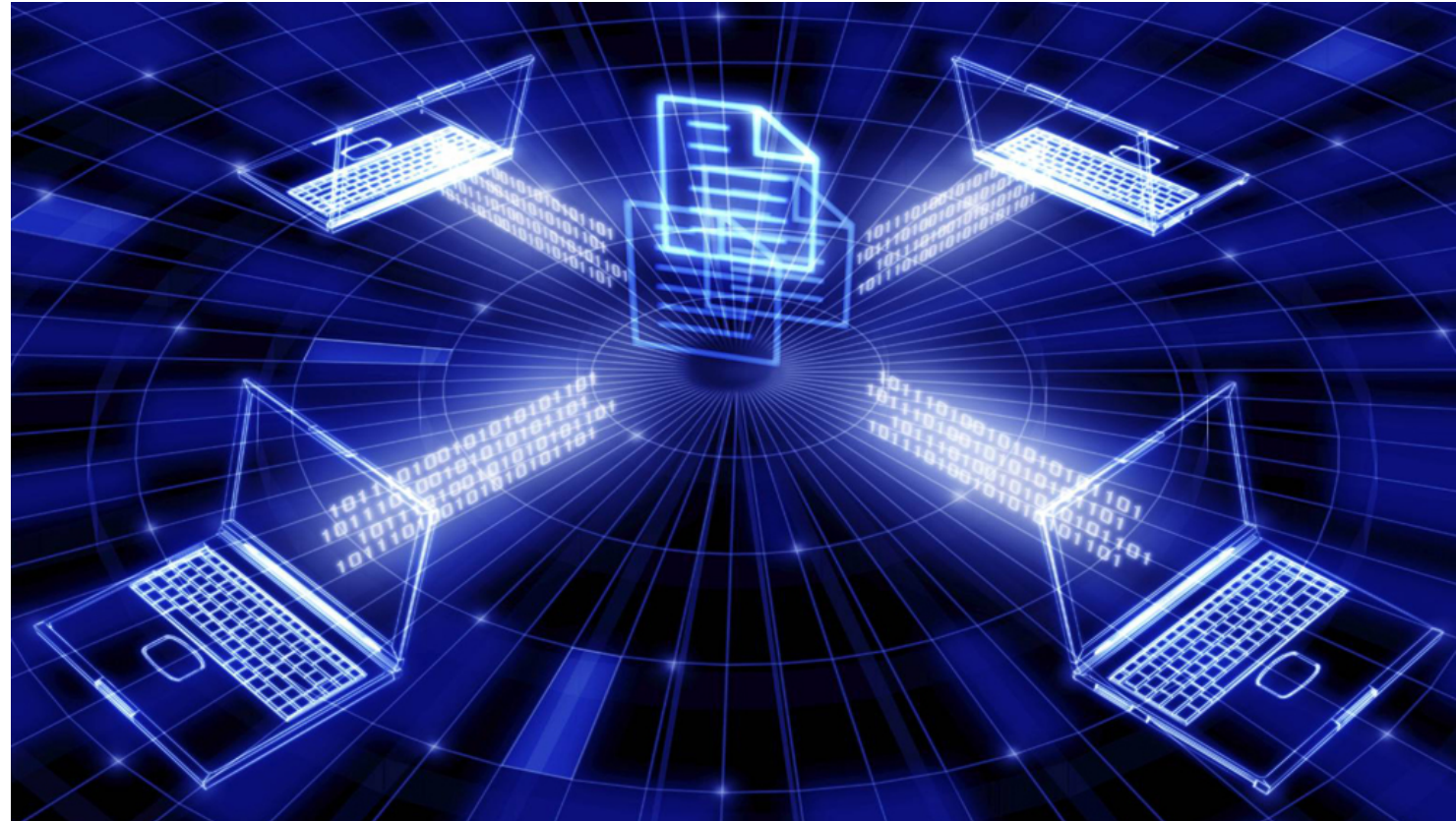


Source: <http://techgenix.com/tgwordpress/wp-content/uploads/2018/06/data-corruption-Shutterstock.jpg>

Max Labs – 2a Discussion

Data Redundancy

- Root Causes?
- Misrepresentation of Facts:
 - Corrupted Reports & Dashboard
- Solutions
 - Creating a Plan



Source: <https://news.bitcoin.com/wp-content/uploads/2016/02/f100.jpg>

Max Labs – 2a Discussion

Data Integrity

- Velocity & Veracity
- Five Principles

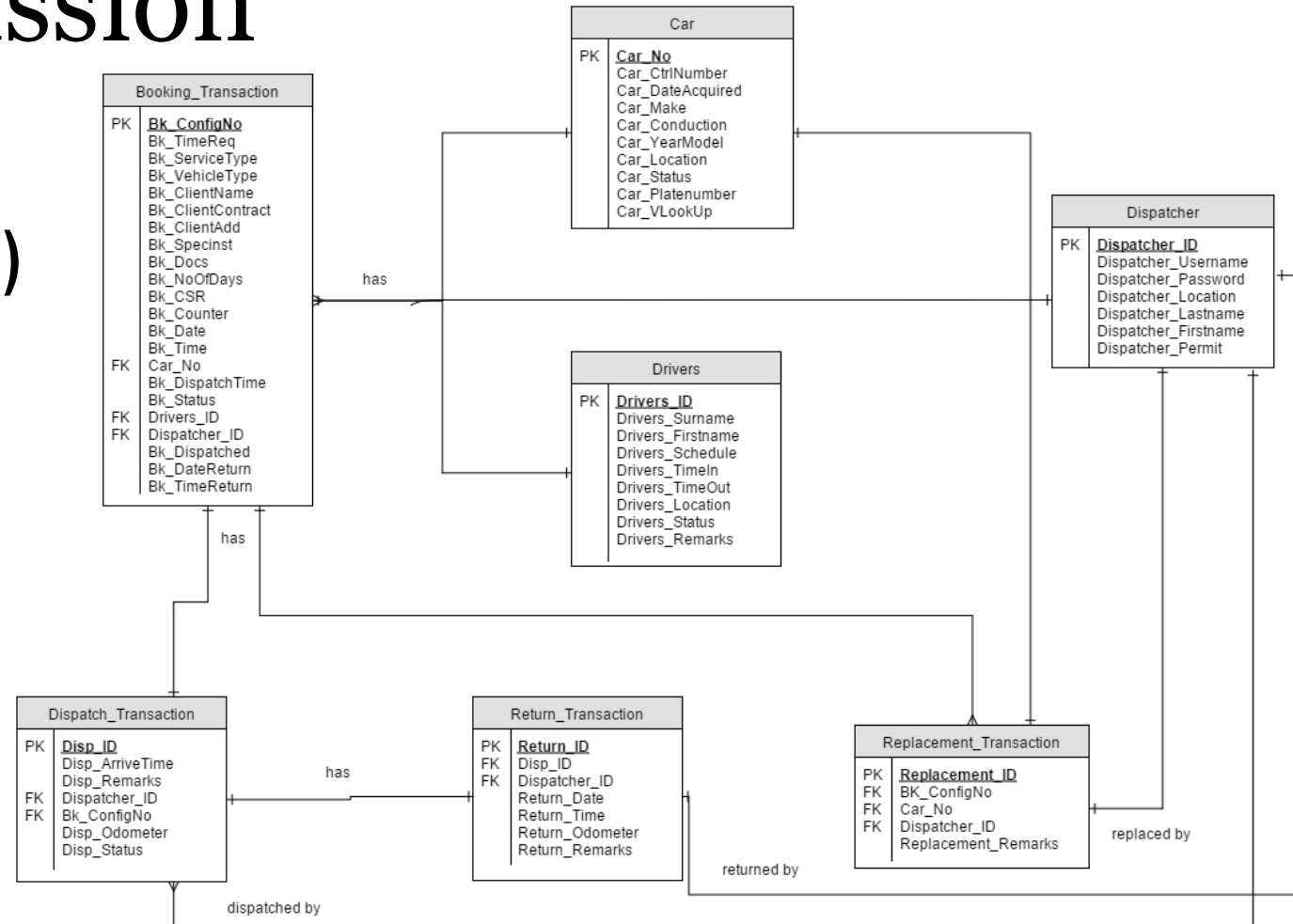


Source: <http://www.rightpatient.com/wp-content/uploads/2015/05/Data-Integrity-2.jpg>

Max Labs – 2a Discussion

Entity Relationship Diagrams (ERD's)

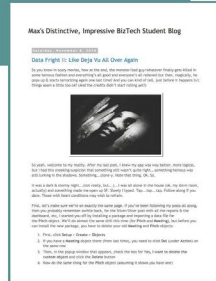
- Cardinality & Crow's Feet
- Data Modeling Requirements
 - Understanding Users Needs
 - Preventing Redundancy



Source: <https://sites.google.com/site/dracvbms/entity-relationship-diagram>

Business Systems Innovation Labs

Lab 2b Pre-flight Checklist



"Data Fright II: Like Deja Vu All Over Again"

This latest posting from Max takes you deeper into data modeling, eg normalization, many-to-many relationships, data "maps" (schemas), etc.

Why?

You might have to build your own app someday but even if you don't, you will have to work with people building apps for you, and *understanding how they model your data will help you make sure they get your apps right.*

Prep: What do you need to start?

Max Labs 2b

Digital Product Management

FOX
MIS

Max Labs – 2b Discussion

Importing Data

- Creating Tables
- Avoiding Redundancy



Source: <https://nebulaconsulting.co.uk/wp-content/uploads/2014/04/pexels-photo-1179800.jpeg>

Max Labs – 2b Discussion

Avoiding Redundancy

- Data Normalization
- Understanding Relationships
- ERD's

Use Cases



Source: <https://www.salesforce.com/blog/2015/11/3-steps-to-the-proper-care-and-handling-of-your-data.html>

Max Labs – 2b Discussion

Database Relationships

- Creating Fields
- Spanning
- Tables

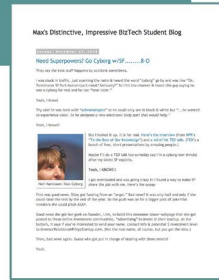
Normalized Data Model



Source: <https://www.salesforce.com/blog/2015/09/are-you-a-data-strong-marketer.html>

Business Systems Innovation Labs

Lab 3a Pre-flight Checklist



“Need Superpowers? Go Cyborg w/SF.....8-0”

In this episode, Max’s job is getting out of control and she can’t keep up. Fortunately, she figures out how to build business rules into SF to make it help do the work. That’s *process automation*—how you make the computer do the busywork so your job is *scalable*. She also uses Customer Relationship Management (CRM) to better deal with customers (VCs & Angels, in her case), even when there’s tons!

Prep: What do you need to start?

Max Labs 3a

Digital Product Management

FOX
MIS

Max Labs – 3a Discussion

Data Driven Humans = Cyborg?

- Technology Awareness
- Managing Data
 - Scalability
 - Automation
 - Templates

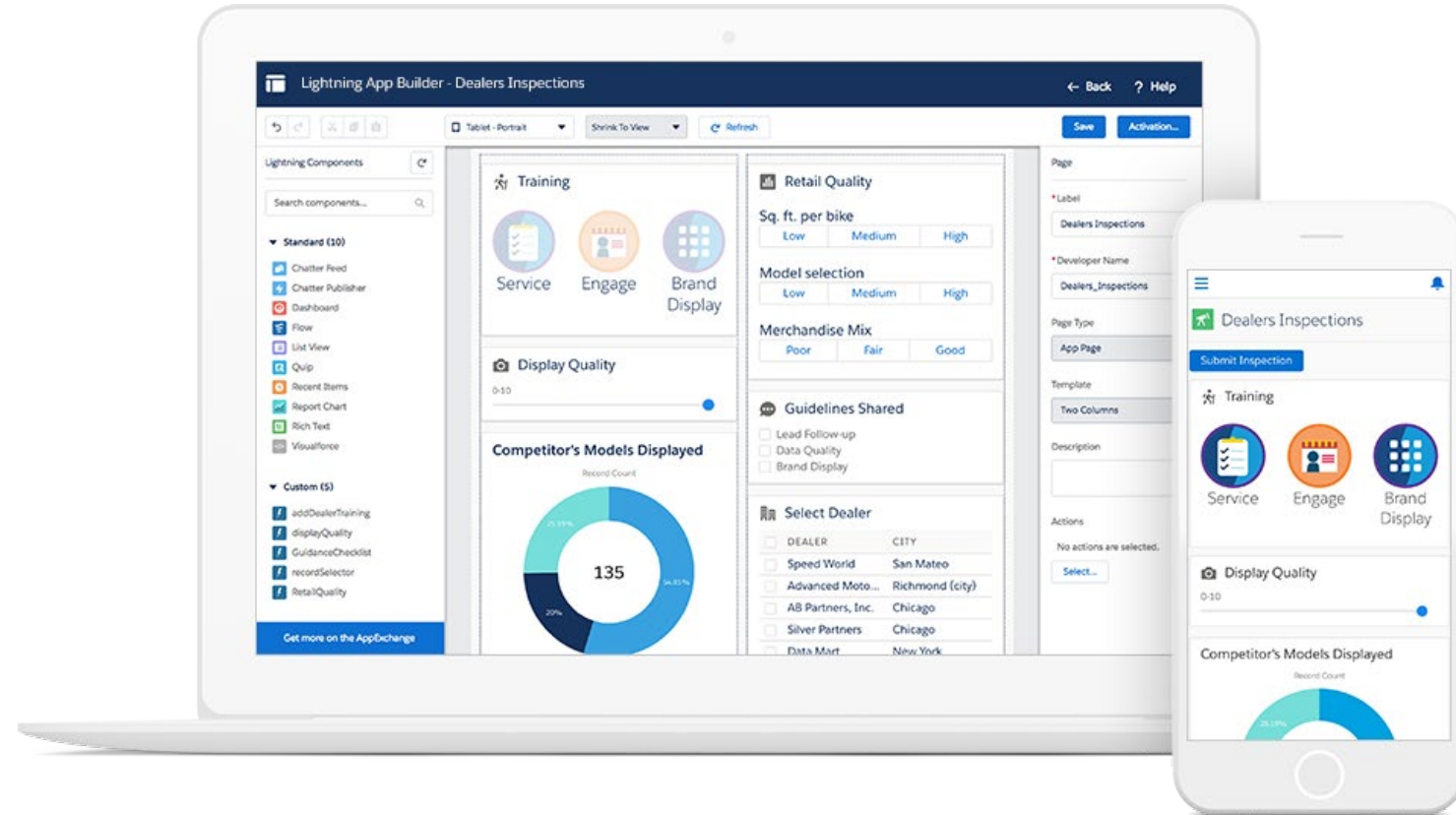


Source: <https://thumbor.forbes.com/thumbor/960x0/https%3A%2F%2Fspecials-images.forbesimg.com%2Fdam%2Fimageserve%2F935226186%2F960x0.jpg%3Ffit%3Dscale>

Max Labs – 3a Discussion

Platform Tools

- Programming
- Implementing Business Rules
- Automation



Source: <https://www.salesforce.com/products/platform/lightning/>

Max Labs – 3a Discussion

Cyborg CRM?

- Business Processes
- Platform Features
 - Managing Communications
 - Process Automation



Source: <https://designerd.info/features/neil-harbisson-the-art-of-being-a-cyborg/>

Business Systems Innovation Labs

Lab 3b Pre-flight Checklist



“How to be a Better Borg”

This is the last of Max's lab postings. It takes you farther than you ever imagined you could go in a course like this!

Prep: What do you need to start?

Max Labs 3b

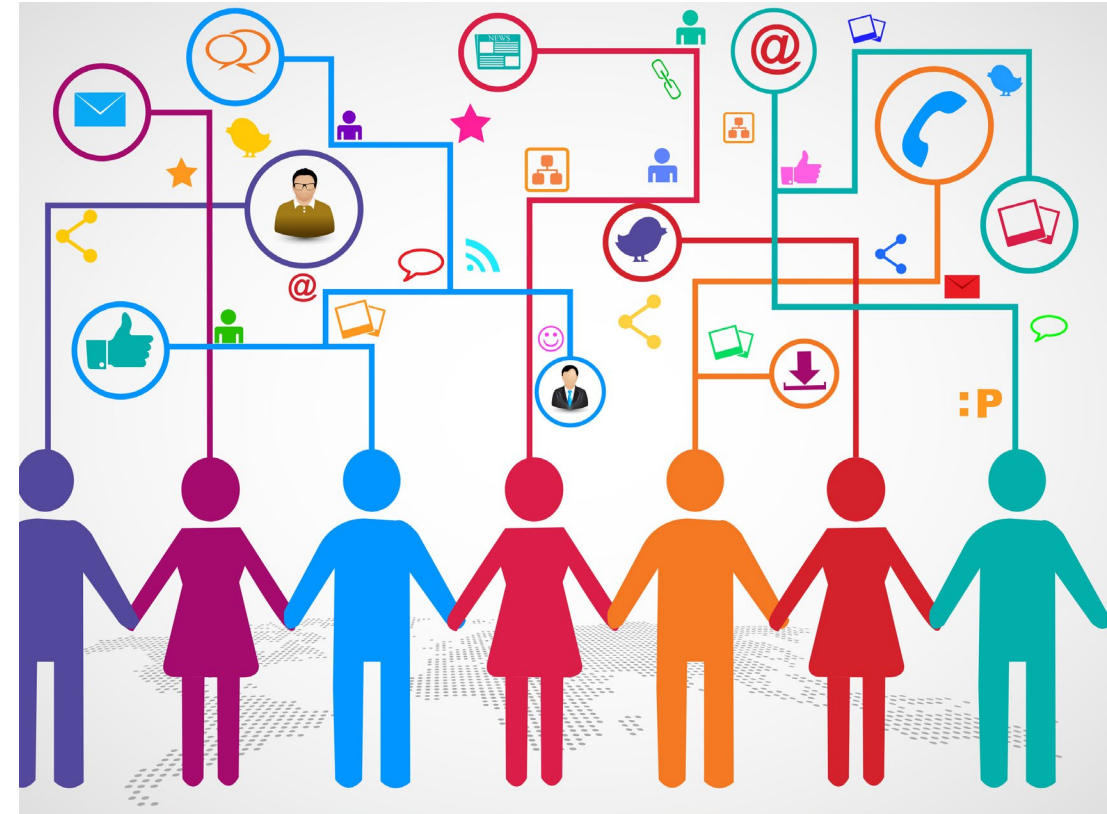
Digital Product Management

FOX
MIS

Max Labs – 3b Discussion

“Social Business”

- Internal vs. External
- Communication Tools
- Enterprise Environment
- Practice Professionalism

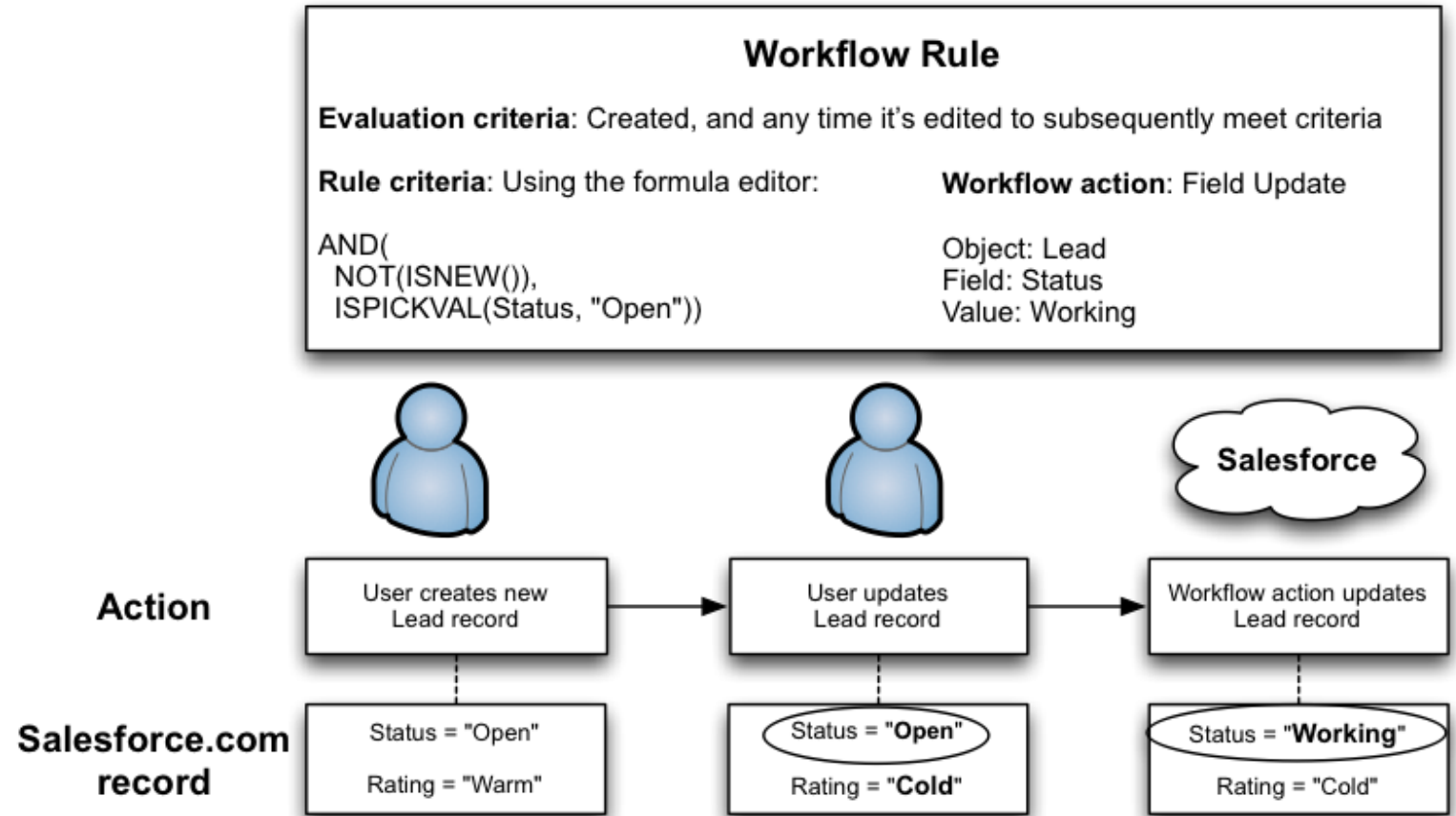


Source: https://joannemccall.com/wp-content/uploads/2017/02/social-network_110003543-012814-int.jpg

Max Labs – 3b Discussion

Workflows

- Task Sequences
- Rule Creation
- Assignment



Source: <https://c1.sfdcstatic.com/content/dam/blogs/us/May2016/Picture15.png>

Max Labs – 3b Discussion

Email Messaging

- Creating forms & templates
- Auto-response
- Configuration

Available Merge Fields
Select Field Type
Lead Fields
Select Field
Annual Revenue
Copy Merge Field Value
{!Lead.AnnualRevenue}

Copy and paste the merge field value into your template below.

Step 2. Text Email Template: New Template Step 2 of 2

Email Template Information ! = Required Information

Folder

Available For Use

Email Template Name

Template Unique Name

Encoding

Description

Subject

Email Body

Source: <https://developer.salesforce.com/forums/servlet/rtalImage?eid=906F0000000D6Js&feoid=Body&refid=0EMF000000TjgE>

Max Labs – 3b Discussion

Coding – It's as simple as that!

- Display values
- Create Attributes
- Configuration
- API's

The screenshot displays the Salesforce Page Editor interface. The top navigation bar includes 'Home', 'Leads', 'Accounts', 'Contacts', 'Reports', 'Dashboards', 'Documents', and 'Products'. The 'Accounts' tab is selected, showing a page with a 'Create New...' button, a 'Recent Items' list (Hello World, Liz Garcia, Marc Ryan, Working Writer), and a main content area with 'Hello Liz!' and 'You are viewing the Hello World account.' Red callouts point to the 'Accounts' tab and the main content area, with text boxes explaining that setting the 'standardController' attribute to 'Account' allows the page to use Account styling and display field values for a specific record.

Setting the standardController attribute to "Account" tells the page to use the Account styling . . .

. . . and allows the page to display field values for a specific record.

```
1 <apex:page standardController="Account">
2   Hello {!$User.FirstName}!
3   <p>You are viewing the {!account.name} account.</p>
4 </apex:page>
```

Source: https://developer.salesforce.com/docs/atlas.en-us.pages.meta/pages/pages_quick_start_display_field_values.htm

Max Labs – 3b Discussion

“The Cloud”

- API's
- PAAS
- Automation
- Coding
 - HTML



Source: https://i1.wp.com/www.startupmgzn.com/english/wp-content/uploads/2018/06/shutterstock_710262001.jpg?resize=740%2C494&ssl=1

Max Labs – 3b Discussion

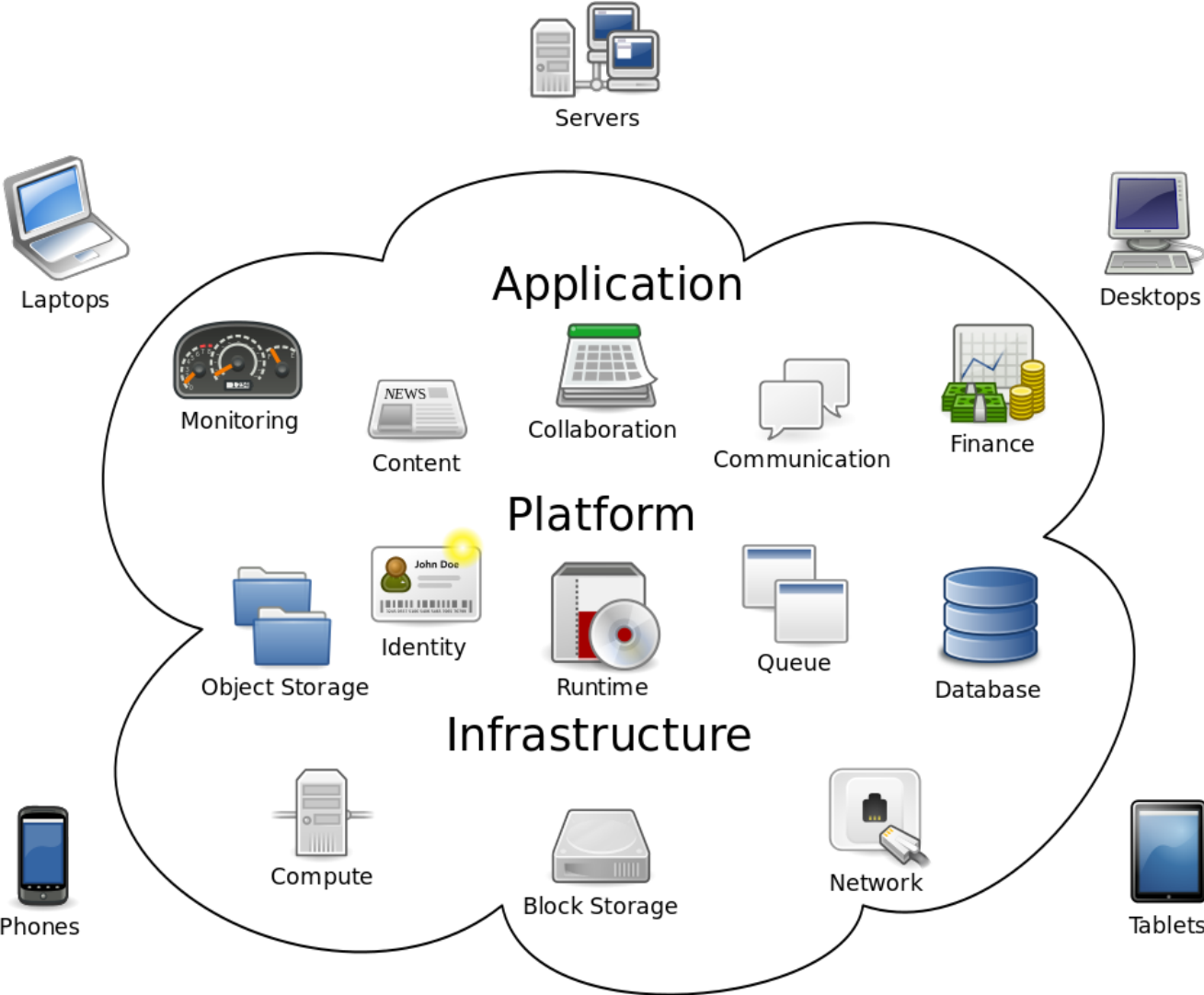
Human/Cyborg – Process Improvement

- Organizational Benefits?
 - Better/Faster/Smarter
 - Leveraging Technology
 - Scalability



Source: <https://geospatialmedia.s3.amazonaws.com/wp-content/uploads/2019/01/AI-1.jpg>

Cloud Computing



Cloud Computing